Tribhuvan University
Institute of Science and Technology
2080
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Bachelor Level / Second Year/ Fourth Semester
Bachelors in Information Technology (BIT 252)
(Artificial Intelligence)

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to give their answers in their own words as for as practicable.
The figures in the margin indicate full marks.

Section A

Long Answer Questions
Attempt any TWO questions   [2×10=20]

1. List the properties that a machine must have to pass the Turing Test. Describe the ambiguities in each step in Natural Language Processing.   [4 + 6]

2. Define agent. How do you describe PEAS for an agent? Describe the different types of environment with example.   [1 + 3 + 6]

3. How do Depth Limited Search solve the problem of Depth First Search and discuss about its limitations? Illustrate the concept of AO* search in multiplication of any 3 matrices.   [5 + 5]

Section B

Short Answer Questions.
Attempt any EIGHT questions   [8×5=40]

4. Explain the architecture of expert system.   [5]

5. How does Genetic algorithm work? Explain.   [5]

6. Discuss different types of Neural Network.   [5]

7. What is machine learning? Describe about NLU and NLG.   [1 + 4]

8. Distinguish between backward chaining and forward chaining with an example.   [5]

9. Define game. Give a state space representation of any problem you know.   [2 + 3]

10. Represent the following sentences into semantic network.   [5]
    a. All animals and plants are living things.
    b. Rose is a plant.
    c. All plant prepare food using photosynthesis process.
    d. Carnivorous animal don't eat plant.
    e. Tiger is carnivorous.

11. Explain about belief network with an example.   [5]

12. Discuss about Hill climbing search with its limitations.   [5]